Mordialloc Bypass Project

Expert Witness Report of Kirsten Bauer
Mordialloc Bypass Project

Report of Kirsten Bauer

1 Introduction

My firm ASPECT Studios prepared the impact assessment report titled Mordialloc Bypass Landscape and Visual Impact Assessment report (LVIA Report) which is included as Appendix C to the Environment Effects Statement (EES) for the Mordialloc Bypass Project (Project).

The role that I had in preparing the LVIA Report was as supervising and lead landscape architect and author. The report was co-authored by Tim D’Agostino, and his expertise is as a qualified urban planner and landscape architect.

The LVIA Report was undertaken in 2018 and the final LVIA Report completed on 18 September 2018. The assessment included:

- Site and context analysis
- Landscape character assessment
- Landscape and visual sensitivity assessment
- Impact assessment
- Risk register
- Mitigation design guidelines
- Urban design strategy

I adopt the LVIA Report, in combination with this document, as my written expert evidence for the purposes of the Mordialloc Bypass Project Inquiry and Advisory Committee’s consideration and reporting in respect of the Project.

2 Qualifications and Experience

Appendix A contains a statement setting out my qualifications and experience, and other matters in accordance with the Planning Panels Victoria’s ‘Guide to Expert Evidence’.

A copy of my curriculum vitae is provided in Appendix B.

3 Further Work Since Preparation of the LVIA Report

Since the LVIA Report was finalised, I have undertaken further work in relation to:

- Reviewing the VicRoads Landscape Concept Plan 28/06/2018.
- Reviewing the visualisations prepared by major road authorities.
- Reviewing the Alternative Lower Dandenong Road / Mordialloc Bypass Freeway Interchange.
- Reviewing the Mordialloc Freeway – Noise Walls and Fencing Plan, VicRoads Landscape and Urban Design 28/06/2018, that includes Fauna Barrier, Fauna exclusion Fencing or Multi-Purpose Wall.
3.1 VicRoads Landscape Concept Plan

The VicRoads Landscape Concept Plan was undertaken separately to that of the ASPECT Studios LVIA Report. LVIA Report’s Landscape and Urban Design Strategy and LVIA Report were provided to VicRoads to inform their Landscape Concept Plan. In addition, a workshop was undertaken between parties. ASPECT Studios undertook a brief review of the VicRoads Landscape Concept Plan before its finalisation.

I have further reviewed the VicRoads Landscape Concept plan in more detail and assessed it against the LVIA Report recommendations.

I note that the VicRoads Landscape Concept Plan does not identify the preferred design outcome of all urban and architectural elements, and that it refers to an Architecture Plan in some instances. I have not seen or reviewed any Architecture Plan. As such some key urban design issues such as the quality of design and the resolution of the built elements, including bridges, abutments, noise walls and barriers, have not been reviewed by myself.

Key issues that the final landscape and urban design should address include:

- Full integration of the landscape design and the urban design of the project.
- High quality design of the integrated engineering and architectural elements (i.e. bridges, abutments, noise walls and barriers).
- The incorporation of key pedestrian path connections to the Shared User Path from adjacent public open spaces.

I conclude that the VicRoads Landscape Concept Plan is acceptable and responds appropriately to key issues identified in the LVIA Report and that it aligns with the key landscape mitigation recommendations of the LVIA Report to minimise landscape and visual impacts.

It is expected that, in conjunction with urban design undertakings, additional reductions in impact can be achieved as part of the detailed design phase of the Project.

3.2 Review of Visualisations

The Major Road Projects Authority’s visualisations were undertaken separately to that of those done by WSP under the supervision of ASPECT Studios.

The ASPECT/WSP visualisations are accurate depictions of the location and form of the proposed bypass as may be viewed by the human eye from the set location. These were undertaken to assess the likely changes to the landscape character and views from sensitive places. These images did not include mitigation or landscape or architectural treatments.

The MRPA visualisations are indicative images of the project. They do not depict accurately the landscape design and vegetation types proposed, though they do include more landscape mitigation than shown in the ASPECT/WSP visualisations.

My review of the MRPA visualisations has not identified any significant discrepancies with what was assessed.
3.3 Review of Alternative Lower Dandenong Road / Mordialloc Bypass Freeway Interchange

I have assessed the proposed alternative interchange (memo dated 31 January) and have not found any material change in my overall LVIA Report findings.

3.4 Mordialloc Freeway – Noise Walls and Fencing Plan

The LVIA Report included the approximate locations and heights of noise walls known at the time of the report. I have subsequently reviewed the Mordialloc Freeway – Noise Walls and Fencing Plan, undertaken by VicRoads 28/06/2018.

The proposed walls, barriers and fence types include:

- Noise walls (various heights).
- Type 1 — Fauna exclusion multipurpose barrier (solid and opaque) 2m high.
- Type 2 – Fauna exclusion fencing (chain mesh fence).
- Multipurpose wall – Parks Victoria Office (solid and opaque) 3 m high.
- Type A – VicRoads Standard Fencing (approximately 1.8 m post and rail fence).
- Type K – VicRoads Standard Fencing.

I find that there are two key areas of difference between the LVIA Report assumptions and the subsequent Mordialloc Freeway – Noise Walls and Fencing Plan. The Mordialloc Freeway – Noise Walls and Fencing Plan includes additional fauna exclusion barriers and fencing along Braeside Park and Woodlands Wetlands and additional noise walls south of Springvale Road.

I have undertaken a desktop assessment of the additional barriers and fencing for Braeside Park and Woodlands wetlands.

Figure 1 – South Braeside Park and Woodland Wetlands- Mordialloc Freeway – Noise Walls and Fencing Plan, undertaken by VicRoads Landscape and Urban Design 28/06/2018.
**Braeside Park – South** (from Parks Victoria Office to Governor Road)

Proposed is a solid opaque 2m high wall running adjacent to the eastern carriageway, sitting atop approximately 2–3m high embankment. At the edge of the Braeside Park boundary will be a VicRoads standard fence (post and rail fence).

This barrier/wall element will have two types of landscape and visual impacts: firstly, it will be effective in reducing (and even blocking) views to the Bypass and traffic from park users; and secondly, it will reduce the broader views and sense of a broader landscape from areas more immediately adjacent to the barrier.

Most park users are situated to the north and east of the wetland, and from that distance the vegetation between those users and the barriers will help mitigate the visual intrusion of the barrier into the Park.

Over time, additional planting in front of the walls, both in the right of way and within the Park itself, will also be highly effective in reducing the visual intrusion of the barriers.

The area to the north-west of the Park is adjacent to an embankment and Lower Dandenong Road overpass. Here land within the right of way is limited, and as such mounding (if flood constraints allow) and additional planting within Braeside Park should be considered to reduce impacts and improve the amenity of the Park.

**Woodlands Wetland**

Proposed is a solid opaque 2m high wall running adjacent to the western carriageway, sitting atop approximately 2–3m high embankment. There is an existing fence at the edge of the wetlands.

This barrier/wall element will have two types of landscape and visual impacts: firstly, it will be effective in reducing (and even blocking) views to the Bypass and traffic from wetland park users; and secondly, it will reduce the broader views and sense of broader landscape from areas more immediately adjacent to the barrier.

There are a number of pathways through this area, and one that is close to the right of way. Users along the path close to the right of way will have the most view of the barrier/wall.

Over time, additional planting in front of the walls, both in the right of way and within the Park itself, will also be highly effective in reducing the visual intrusion of the barrier itself.

**Braeside Park – Middle** (Parks Victoria Office)

Proposed is a solid and opaque multipurpose wall 3m high that runs adjacent to the eastern carriageway for approximately 120m, just south of the Parks Victoria Office, to the pedestrian underpass, and which sits atop an approximately 2-3m high embankment. Adjacent to the Shared User Path will be a VicRoads standard fence (post and rail fence).

This barrier will effectively screen the Parks Office and its users from the Bypass. Over time, additional planting in front of the walls and, if flooding management allows, some low mounding both in the right of way and within the park itself, will also be highly effective in reducing the visual intrusion of the barrier itself.
Figure 2 – North Braeside Park – Mordialloc Freeway – Noise Walls and Fencing Plan, undertaken by VicRoads Landscape and Urban Design 28/06/2018.

**Braeside Park - North (from Parks Victoria Office to Lower Dandenong Road)**

Proposed is a fauna exclusion fence (chain mesh fence) running adjacent to the eastern carriageway, sitting atop approximately 2–3m high embankment. At the edge of the Braeside Park boundary will be a VicRoads standard fence (post and rail fence).

Park users in this area of the park typically move along the main pathway just east of the right of way and then further inwards through the main picnic areas. The existing vegetation along the park boundary generally obscures direct views into the existing reserve area and such will be effective in reducing the visual impact of the Bypass.

As land within the right of way is limited further north to Lower Dandenong Road, mounding (if flood constraints allow) within Braeside Park should be considered to reduce impacts and improve the amenity of the Park.

The addition of two fence lines will add more visual elements into the landscape. However I do not believe that these elements will add significantly to the existing level of impact assessed.

To reduce the impact of the fauna exclusion fence I highly recommend that the fence uses a black coated wire mesh to reduce the its visibility in the landscape.

It is assumed that the final design of these barriers and walls must meet the ecological requirements as identified by the Project ecologists as well as reducing their visual impact on the adjacent landscapes.

In conclusion, I find that my assessment of these barriers has not caused me to materially change my assessment rating for the landscape character areas and sensitive sites as expressed in the LVIA Report.
4 Written Submissions

I have read the public submissions in respect of the EES and draft Planning Scheme Amendment for the Project and have identified those that are relevant to the LVIA Report and my area of expertise. These include the following submissions:


4.1 Summary of Issues Raised
The submissions have raised the following key issues relevant to my area of expertise:

- Visual impact on the Waterways wetlands and estate residences.
- Visual and amenity impact on Braeside Park.
- Visual and amenity impact on the Dingley Village.
- Quality of design of bridges, abutments, noise walls and Shared User Path throughout.

4.2 Visual Impact on the Waterways Wetlands and Estate Residences
There is general concern with the visual and landscape character impact on the Waterways Estate and public open space areas from the noise walls and bridges.

The LVIA Report has assessed that the landscape character impacts on this area will be high to very high, and high to moderate.

The bridge over the creek and wetlands will be approximately 9m high (with noise walls) and will have the most impact on adjacent open space, most western residences of the Waterways Estate and most northern residences of Aspendale Gardens.

The impacts can be reduced to high or moderate with appropriately designed bridge and noise walls of urban design/architectural quality, designed to be recessive in the landscape and with proposed planting as per the VicRoads Landscape Concept Plan.

The impact on identified sensitive viewpoints/receptors ranges from negligible to high with, again, the assumption of appropriately designed bridge and noise walls of urban design/architectural quality, designed to be recessive in the landscape and with proposed planting as per the VicRoads Landscape Concept Plan.

Most of the high visual impacts will be upon the Waterways open space and the first line of residential properties overlooking the western open spaces towards the Bypass. The impact is less in areas further to the east.

The main residential properties that will have the highest level of visual impact are those in the western area and the south-west. These are approximately 200m from the Bypass. Properties beyond 500m will receive low to negligible visual impact.

The combination of noise walls and 2m high fauna exclusion barrier (presumed opaque) along the eastern edge of the Bypass will either block or obscure views of vehicles (and headlights) on the road.

Transparent or acrylic noise walls have been suggested for bridges in the LVIA Report as part of the Landscape and Urban Design Strategy. The final built materiality of these walls/barriers should have regard to both the desires of the community, the visual impact on adjacent properties, ecological requirements and best practice urban design.
4. 3 Visual and Amenity Impacts on Braeside Park

There is general concern with the visual and landscape character impact on Braeside Park.

Braeside Park, as a holistic landscape character, has been assessed as being of very high landscape value. The landscape and visual character of Braeside Park will be affected by the Bypass. The assessment of the landscape character impact was determined to be high to moderate, with moderate impact on the area north of the Parks Victoria Office and high for the wetlands area to the south (called Central Wetlands in the LVIA Report).

The impact on identified sensitive viewpoints /receptors ranged from low to moderate.

For a review of the impact of the Bypass and the proposed barriers and walls, please refer to Section 3.4.

4. 4 Visual and Amenity Impacts on Dingley Village

There are concerns over the landscape and visual impacts on the local amenity for residents of Dingley Village.

The Dingley Village residential landscape character zone has been assessed as having high to moderate impact. This comes primarily from the impact of the high embankments and noise walls and bridge overpass (at the highest point around 15m to the top of noise walls) and visibility in the northern and southern areas of the suburb.

Impacts on Chadwick Reserve have been assessed as low to moderate. As the Bypass is low at this point, views to the Bypass can be reduced by vegetation and noise walls.

4. 5 City of Kingston Submission No.83

The City of Kingston Submission is wide-ranging, from impact issues to specific design recommendations. I have responded to issues raised regarding landscape and visual impact and addressed design recommendations where I believe they relate to landscape and visual impact assessment.

These issues are in addition to those already addressed earlier in this Report.

Transparent Noise Walls

The City of Kingston proposes the use of transparent noise/fauna exclusion walls to key public areas, i.e. Braeside Park and wetlands.

In regard to visual impact reduction, I believe a solid opaque wall for the majority of vertical height for the southern barriers along Braeside Park would be more appropriate. Within an open space one may not desire to readily see into a freeway environment, especially from within a more natural landscape character park, such as Braeside Park. Direct visibility of the bypass will reduce the natural amenity and enjoyment of the Park.

It is assumed that the final design of these barriers and walls must meet the ecological requirements of the Project’s ecologists as well as reduce their visual impact on the adjacent landscapes.

Chadwick Reserve

Council recommends expanding and enhancing Chadwick Reserve with the creation of wetlands in the western portion of the site to both treat and harvest stormwater for re-use.

The Bypass project has the opportunity to review closely the overall public benefit of improving adjacent public open spaces and water infrastructure, as an integrated infrastructure outcome for the community.
The additional wetlands, associated planting and pathways at this location would further reduce visual impacts on the Reserve and improve its amenity.

The current VicRoads Landscape Concept Plan does not include a path connection from Chadwick Reserve (Howard Road) to the Shared User Path. Currently there is no internal formal pathway for pedestrians and cyclists in the Reserve, however connecting the Shared User Path to the adjacent streets and parks where possible is important to fulfilling the urban design principles of Shared User Path user safety, community connection and general amenity.

This connection should be investigated further in consultation with the Council and form part of the broader project.

**Connection at Bowen Parkway/Waterways Estate**

Council identifies that to achieve the most direct route possible for cyclists from Bowen Parkway to the south side of Mordialloc Creek, the Project should consider a suspended path system over the sensitive Waterways wetland.

The current Shared User Path connection is along Bowen Parkway, then along Mordialloc Creek and connecting back up to the western side of the Bypass. This is an acceptable Shared User Path connection.

The VicRoads Landscape Concept Plan and LVIA Report’s Landscape and Urban Design Strategy recommend the benefits of an additional suspended path over the wetland for a more direct shared user path connection.

The path connection would need to meet environmental performance requirements to ensure no additional impacts on the environment occurred, but is an opportunity that should be further explored as part of detailed design process.

**High Quality Noise Walls and Bridges**

Council seeks assurance that noise walls and bridge designs will be of high quality and assist in reducing the visual bulk of, and enhance the presentation of, bridges. They suggest that noise wall materials must compliment the natural setting, be recessive and use a muted colour palette, and that bright iridescent colours should not be used.

I recommend that best practice urban design be undertaken for all noise walls and road engineering elements to reduce the visual impact on adjacent areas. The materials and colours used for these elements should be in keeping with the natural landscape and ecological values of the area. These are predominantly muted in colour palette.

There is an opportunity for stronger colours or tones on the bridge overpasses for Old Dandenong Road, Centre Dandenong Road and, potentially, Lower Dandenong Road (depending on visual impact in Braeside Park).

**Shared User Path Connections – Aspendale Gardens**

Council proposes that the Shared User Path adjacent to Aspendale Gardens should provide connections that link with the current public open space and footpath network, for example at Ferntree Grove and Bungalow Way.

The VicRoads Landscape Concept Plan and LVIA Report’s Landscape and Urban Design Strategy recommend that formal path links are made to Bangalow Way and Ferntree Grove as part of the Project. Undertaking these links will improve community connectivity, amenity and the safety of the linear open space.
I believe these path links should form part of the Project, to improve pedestrian connectivity, increase community safety and improve overall amenity.

**Shared Path Western Side**

Council is seeking that sufficient space be allowed for a future 3m shared path connection along the length of the western side of the freeway.

This is an appropriate idea and needs to be balanced against wetland, ecological, hydrological and connectivity issues. There are some areas where the right of way becomes narrow. However, the current design does not preclude this 3m shared path connection from occurring in the future.

**Use of Advanced Tree Stock**

There is a recommendation that all trees planted adjacent to noise walls or within the road reserve at wetlands, residential and industrial interfaces be installed as advanced stock (minimum 15L).

Plant growth and health, especially for native and indigenous trees, is best when they are planted as tubestock. The rate of growth and health outperforms advanced stock in the long term. This increases the future quality of visual screening and habitat plantings.

**Noise walls and Residential Areas**

There is a recommendation that noise walls that come within 40m of residential areas and the Shared Use Path must be transparent.

The design of noise walls should be fit for purpose and the decision on a noise wall being opaque or transparent needs to balance multiple issues including:

- Residential concerns and preferences for the view (seeing the road and traffic or not).
- Overshadowing.
- Amenity of adjacent areas.
- Ecology.

The detailed design process for the project should use best practice to ascertain the appropriate noise wall types.

**Safety and Design of the Pedestrian Underpass**

Council is seeking to ensure that dimensions of no less than 6m width be adopted to ensure generous visibility from one end of the tunnel to the other, and that wing walls to be splayed at a maximum angle to ensure the underpass is not visually elongated.

The LVIA Report Section 11.1.2 Non-Standard Mitigation states that a “standard box culvert design of 2.6m high x 4m wide can make an underpass feel unsafe and unwelcoming to pedestrians and cyclists, negatively impacting use and safety.” This is especially true when regarding a long underpass.

The VicRoads Landscape Concept Plan recommends that the underpass be “as wide as possible”. The underpass should be designed to meet best practice in underpass design and safety.

The only formal State guidelines known in regard to this are the Victorian Urban Design Guidelines which say, “construct grade-separated (pedestrian) crossings with a width greater than 3m, with a minimum of 2500mm between handrails, an unobstructed height no less than 2500mm, exit splays of 45 degrees, and clear sightlines for 15m.”

However, considering the underpass’s location away from an active street and urban centre, and its
length, the underpass should be as wide as possible, and certainly wider than 4m.

The project should consider that best practice be followed in the design of the pedestrian underpass and that its width be as wide as possible.

**Pedestrian Connection Between Centre Dandenong Rd and Lower Dandenong Rd**

Council has proposed an additional pedestrian connection in the vicinity of Chadwick Reserve to Redwood Gardens Industrial Estate. There is an existing informal crossing north of Chadwick Reserve to Elm Tree Drive and it was assessed as an important link for community connectivity.

I have considered this in more detail. There are two alignments that stand out as possible in regard to movement patterns and adjacencies.

First, a more northerly connection between Holy Rive or Elm Tree Drive and the eastern linear open space area and Shared User Path. From here people would need to go further south to get to Chadwick Reserve to connect to the street network, or further north until Centre Dandenong Road to access other path links. This route brings the pedestrian underpass to a point along the Shared User Path with little passive surveillance.

Second, a more southerly route, directly adjacent to Chadwick Reserve across to meet the narrow western linear space. From here people will need to go further north approximately 300m to link up with Holy Rive or Elm Tree Drive. The entry to the underpass would have more passive surveillance, however the path on the western side would be between industrial building and the Bypass.

A mid option is also possible, which may be a better compromise between the issues of the north and southern options.

![Figure 3 – Diagram showing pedestrian link alignments reviewed.](image-url)
Other issues and visual impacts would also need to be taken into consideration, such as that the Bypass may need to rise in level to create enough clearance (say at least a minimum of 2.6m and preferably 4m high) for an underpass and this would have knock-on effects with an increase the overall height of the noise walls, and it would increase visual impact and overshadowing of the adjacent linear open space. This could be mitigated through a transparent noise wall design, but again this would need to be balanced with the visibility of the Bypass to adjacent residents. A pedestrian underpass could go below the current ground line, but would most likely require water pumping measures to ensure it remain water free at all times.

Further detailed design and investigation should be undertaken to the fully ascertain community benefits and the visual impacts.

I am however satisfied that this potential connection is not as high a priority as the planned more southern pedestrian underpass between Braeside Park and Woodlands Industrial Estate.

5 Conclusion

In preparing this report I have reviewed the LVIA Report, the public submissions, the VicRoads Landscape Concept Plan and the final Mordialloc Freeway – Noise Walls and Fencing Plan, VicRoads 28/06/2018.

The current VicRoads Landscape Concept Plan is an acceptable response to reducing the landscape and visual impacts of the Bypass at this point in the Project. It is expected that, in conjunction with urban design undertakings, additional reductions in impact can be achieved as part of the detailed design phase of the Project and with a whole of government approach.

There are several important mitigation and urban design opportunities that should be given the full consideration they deserve for inclusion in the Project that sit within the physical project boundary of the project, and they include:

Braeside Park Pedestrian Underpass

- The Project should consider that best practice be followed in the design of the pedestrian underpass and that its width and height be as wide as possible.

Braeside Park

- The Project should consider further development of the VicRoads Landscape Concept Plan and the architectural design of the barriers and fences to further reduce the visual impact of the Bypass and its barriers and fences on the Park and its users. This may include planting outside of the current project right of way and within the Park itself.

Waterways Wetland

- The bridges/noise walls over the Mordialloc Creek and Waterways Wetlands should be designed to reduce the visual impact on the adjacent areas and be recessive as possible in the landscape.

Important mitigation and urban design opportunities that should be give the full consideration they deserve and that sit outside the physical project boundary of the project are:

Chadwick Reserve

The Project should, in consultation and negotiation with the Council, provide a path connection through Chadwick Reserve to the Shared User Path.
Aspendale Gardens Path connections

- A commitment should be made to the connection of the Shared User Path to adjacent public parks and streets as identified in the LVIA Report and the VicRoads Landscape Concept Plan.

Secondary opportunities, of lesser priority, that should be investigated and potentially included as part of the project are:

Chadwick Reserve

- The Project should consider the opportunity to further mitigate the Bypass and associated noise walls by including landscape improvements to Chadwick Reserve, such as integrated water management (as suggested by Council) and planting.

Chadwick Reserve Pedestrian Underpass

- Further detailed design and investigation should be undertaken to the fully ascertain community benefits and the visual impacts.

Shared User Path Connection Under Waterways Wetland Bridge

- Further detailed design and investigation should be undertaken to the fully ascertain community benefits.

I have reviewed the Environmental Performance Requirements relevant to my area and I recommendation that due consideration be given to the requirement for a quality urban design outcome for the project, including that:

- Noise walls, bridges, abutments and other visually apparent elements are urban designed by appropriate urban design professionals with regard to ecology and landscape integration.

- Colours and materials of the noise walls are derived from the landscape and ecological environmental context.

- The pedestrian underpass is designed to best practice urban design principles.

Declaration

I have made all the inquiries that I believe are desirable and appropriate and no matters of significance which I regard as relevant have to my knowledge been withheld from the Inquiry and Advisory Committee.

[Signature]

Signed

Date: 2019/02/15
Appendix A

Matters Raised by PPV’s Guide to Expert Evidence

(a) The name and address of the expert

Kirsten Bauer, Level 4 160 Queens Street, Melbourne

(b) The expert’s qualifications and experience

Qualifications:

- Registered Landscape Architect, AILA, Fellow Australian Institute of Landscape Architects
- Adjunct Professor of RMIT University
- Master of Architecture by Design, RMIT
- Bachelor of Landscape Architecture (Hons), RMIT

I am a current Corporate Member of the Australian Institute of Landscape Architects, with a tertiary qualification in Landscape Architecture. I am a current member of the Design Review Panel for the Office of Victorian Government Architect and an inaugural Council member of the Birrarung Council.

(c) A statement identifying the expert’s area of expertise to make the report

I am a qualified landscape architect and urban designer and have developed expertise in the area of landscape and visual impact assessment and large infrastructure design over the last 20 years.

(d) A statement identifying any other significant contributors to the report and where necessary outlining their expertise

The role that I had in preparing the LVIA Report was as supervising and lead landscape architect and author. The report was co-authored by Tim D’Agostino and his expertise is as a qualified urban planner and landscape architect.

(e) All instructions that define the scope of the report (original and supplementary and whether in writing or oral)

**Expert Witness Scope**

Review the Technical Report and the EES to the extent relevant to area of expertise.

Review the public submissions to the extent relevant to area of expertise.

Prepare an expert witness statement that:

- addresses the Technical Report and any work you have carried out since the Technical Report was prepared;
- responds to the public submissions relevant to your area of expertise; and
- addresses any other matter that you consider relevant to your area of expertise.

Prepare a short (no more than 30 minutes) PowerPoint presentation for presenting at the hearing.
The identity of the person who carried out any tests or experiments upon which the expert has relied on and the qualifications of that person

The landscape and visual impact assessment was undertaken by Tim D’Agostino and myself, with the support of various members of the practice. 3D visualisations were undertaken by WSP under our direction.

A statement setting out any questions falling outside the expert’s expertise

Landscape and visual impact at times includes the discussion of amenity – amenity is a wide ranging concept that includes visual, noise, odour, vegetation and connectivity. Issues such as noise and odour fall outside my area of expertise.

A statement setting out any key assumptions made in preparing the report

**LVIA Report assumptions**

- Limited access to detailed topographic data and detailed locations of vegetation and buildings within 2km radius of the project; the project area has developed significantly in the past 15 years so relevant GIS data is limited to LIDAR data.

- Limited access to assess impact on private property; all views and photographs were assessed from publicly accessible locations.

- This report is based on preliminary noise wall information, height and location when this report was developed. This report is based on a draft design by noise specialists also working on this project.

- Limited information on bridge design and structural details of abutments and piers when this report was developed.

**This Report assumptions**

In preparation for this report the following additional information was relied upon:

- VicRoads Landscape Concept Plan 28/06/2018
- Alternative Lower Dandenong Road /Mordialloc Bypass Freeway Interchange.
- Mordialloc Freeway – Noise Walls and Fencing Plan, VicRoads 28/06/2018, that includes Fauna Barrier, Fauna Exclusion Fencing or Multi-Purpose Wall.

2. To my knowledge this report is complete and accurate.
Appendix B

CV

Kirsten Bauer

Qualifications:

- Registered Landscape Architect, AILA, Fellow Australian Institute of Landscape Architects
- Adjunct Professor of RMIT University
- Master of Architecture by Design, RMIT
- Bachelor of Landscape Architecture (Hons), RMIT

I am a current Corporate Member of the Australian Institute of Landscape Architects, with a tertiary qualification in Landscape Architecture. I am a current member of the Design Review Panel for the Office of Victorian Government Architect and an inaugural Council member of the Birrarung Council.

I have undertaken many infrastructure projects in Victoria and South Australia requiring the assessment of likely landscape and visual impacts. Environmental Effects Statements and reports to VCAT (Victorian Civil and Administrative Tribunal) have been undertaken for projects including:

- preparation of the Geelong Bypass Sections 1, 2, 3 and 4a Visual Impact Assessment, VicRoads, including witness statements and attendance at the Geelong Bypass Section 3 panel hearing.
- preparation of the Calder Freeway Visual Impact Assessment, VicRoads, including witness statements and attendance at the Calder Freeway, Harcourt section, panel hearing.
- preparation of the City to Airport Rail link landscape visual impact study and attendance at the Airport Rail link panel hearing.
- assistance with the preparation of the landscape and visual assessment report and witness statement for the Barwon Heads Bridge Panel hearing.
- assistance with the preparation of the Dollar Wind Farms Peer Review report.
- assistance with the preparation of the Ryans Corner Wind Farms Peer Review report.
- assistance with the visual impact assessment and resubmission of this assessment for Barn Hill Wind Farm.
- assistance in the preparation of the peer review and witness statement for the Winchelsea Wind Farm (VCAT Reference No. P2395/2008 and P2654/2008).
• presentation of Witness Statement for Future Energy Pty Ltd on the Chepstowe Wind Farm (VCAT Reference No. 3249/2010).


• landscape architect in the design and delivery of Regional rail packages E and F (Vic).

• assistance with the preparation of the Western Highway Duplication Landscape and Visual Assessment (2012).

• landscape architect in the urban design and assessment of the Heatherton Road level crossing removal project (Vic).

• landscape architect in the design and delivery of the Caulfield to Dandenong Level Crossing Removal Project (Vic).

• Member of the Ministerial Advisory Committee to the State Government on the Protection of the Yarra.

• Expert witness statement for Maribyrnong City Council on the West Gate Tunnel Project and panel hearing (2017).

• Preparation of the landscape and visual impact assessment for the Beaufort Bypass (2017-2018)
Appendix C

Summary of Conclusion of LVIA Report and Final Recommendations

The landscape and visual impact assessment primarily assesses the impact on the broader landscape character areas and the visual impact on identified key sites of sensitivity.

The impact assessment identified five low to moderate impacts and three high impacts on Landscape Character Areas (LCAs), even with best practice non-standard mitigation measures being implemented.

The highest impacts on landscape character include:

- Central Wetlands (inclusive of Braeside Park wetlands) (high)
- Waterways Neighbourhood (high)
- Aspendale / Chelsea Heights Residential (moderate to high).

A total of eight views were identified as having moderate to high impacts even if non-standard mitigation measures are applied.

These include:

- Dingley Village residents north (moderate)
- Dingley Village residents middle (moderate to high)
- Woodland Estate wetlands (moderate to high)
- Bowen Parkway / Waterways (high)
- Spoonbill Place / Waterways (high)
- Jackie Court / Aspendale (moderate to high)
- Retirement Village / Aspendale (Moderate to High).

Impacts are predominantly due to the project running in close proximity to residential areas and other identified sensitive sites. Impacts are amplified when the project’s road design is a bridge, noise wall or utilises land fill over 2.5m in height.

Landscape and urban design mitigation measures still have potential to be integrated and developed to minimise these potential impacts. Non-standard measures and opportunities have been identified in each sub-study area’s associated chapter and in the LVIA Report’s Landscape and Urban Design Strategy mapping and the associated landscape treatments and guiding principles.

These measures and correlating guidelines encourage a high quality urban design and landscape outcome for the sensitive sites, the areas surrounding residents and the community generally.
North sub-study area

Summary of landscape character impacts

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<thead>
<tr>
<th>LCA</th>
<th>LCA value</th>
<th>Sensitivity to change</th>
<th>Magnitude of change</th>
<th>Impact summary with standard mitigation</th>
<th>Impact summary with non-standard mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 – Green wedge north</td>
<td>low to moderate</td>
<td>low</td>
<td>low</td>
<td>low</td>
<td>low</td>
</tr>
<tr>
<td>2 – Dingley Village residential</td>
<td>moderate</td>
<td>very high</td>
<td>high</td>
<td>high</td>
<td>moderate</td>
</tr>
<tr>
<td>3 – Industrial business park</td>
<td>low to moderate</td>
<td>low to moderate</td>
<td>moderate</td>
<td>low to moderate</td>
<td>low to moderate</td>
</tr>
</tbody>
</table>

Summary of visual impacts to key views and sites of sensitivity

<table>
<thead>
<tr>
<th>LCA no.</th>
<th>View</th>
<th>Sensitivity to change</th>
<th>Magnitude of change</th>
<th>Impact summary with standard mitigation</th>
<th>Impact summary with non-standard mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Christ Church Dingley</td>
<td>high</td>
<td>low</td>
<td>low</td>
<td>n/a</td>
</tr>
<tr>
<td>1</td>
<td>Green wedge residents cluster</td>
<td>moderate</td>
<td>moderate</td>
<td>low to moderate</td>
<td>n/a</td>
</tr>
<tr>
<td>1</td>
<td>Tootal Road residential cluster</td>
<td>low</td>
<td>negligible</td>
<td>negligible</td>
<td>n/a</td>
</tr>
<tr>
<td>2</td>
<td>Chadwick Reserve</td>
<td>high</td>
<td>moderate</td>
<td>moderate</td>
<td>low</td>
</tr>
<tr>
<td>2</td>
<td>Dingley Village residents</td>
<td>high</td>
<td>high</td>
<td>moderate to high</td>
<td>moderate</td>
</tr>
<tr>
<td>3</td>
<td>Redwood Gardens Industrial Estate node</td>
<td>moderate</td>
<td>low to moderate</td>
<td>moderate</td>
<td>low</td>
</tr>
</tbody>
</table>

Middle sub-study area

Summary of landscape character impacts:

<table>
<thead>
<tr>
<th>LCA</th>
<th>LCA value</th>
<th>Sensitivity to change</th>
<th>Magnitude of change</th>
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<th>Impact summary with non-standard mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 – Industrial business park</td>
<td>low to moderate</td>
<td>low</td>
<td>high</td>
<td>moderate</td>
<td>low to moderate</td>
</tr>
<tr>
<td>4 – Braeside Park</td>
<td>very high</td>
<td>high</td>
<td>high</td>
<td>moderate</td>
<td>n/a</td>
</tr>
<tr>
<td>5 – Central wetlands</td>
<td>very high</td>
<td>very high</td>
<td>high</td>
<td>high</td>
<td>moderate</td>
</tr>
</tbody>
</table>
### Summary of visual impacts to key views and sites of sensitivity

<table>
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<tr>
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<th>Impact summary with non-standard mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Park Way shared user trail</td>
<td>high</td>
<td>moderate</td>
<td>moderate to high</td>
<td>low to moderate</td>
</tr>
<tr>
<td>3</td>
<td>Lower Dandenong Road/representative view for Dingley Village residents</td>
<td>high</td>
<td>very high</td>
<td>high</td>
<td>moderate to high</td>
</tr>
<tr>
<td>4</td>
<td>Park rangers' office</td>
<td>high</td>
<td>moderate</td>
<td>low to moderate</td>
<td>n/a</td>
</tr>
<tr>
<td>4</td>
<td>Braeside Park trail</td>
<td>high</td>
<td>low</td>
<td>low to moderate</td>
<td>n/a</td>
</tr>
<tr>
<td>5</td>
<td>Braeside Park bird hide</td>
<td>high</td>
<td>low to moderate</td>
<td>low</td>
<td>n/a</td>
</tr>
<tr>
<td>5</td>
<td>Braeside Park wetlands lookout</td>
<td>moderate</td>
<td>low to moderate</td>
<td>low</td>
<td>n/a</td>
</tr>
<tr>
<td>5</td>
<td>Woodlands Industrial Estate wetlands trail and representative view from Governor Road</td>
<td>high</td>
<td>very high</td>
<td>high</td>
<td>moderate to high</td>
</tr>
</tbody>
</table>

### South sub-study area

### Summary of landscape character impacts

<table>
<thead>
<tr>
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<th>Impact summary with non-standard mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 – Industrial business park</td>
<td>low to moderate</td>
<td>negligible</td>
<td>negligible</td>
<td>negligible</td>
</tr>
<tr>
<td>5 – Central wetlands</td>
<td>very high</td>
<td>very high</td>
<td>very high</td>
<td>very high</td>
</tr>
<tr>
<td>6 – Waterways neighbourhood</td>
<td>very high</td>
<td>very high</td>
<td>very high</td>
<td>very high</td>
</tr>
<tr>
<td>7 – Aspendale / Chelsea Heights residential</td>
<td>moderate</td>
<td>high</td>
<td>high</td>
<td>high</td>
</tr>
<tr>
<td>8 – Aspendale / Chelsea Heights commercial</td>
<td>low</td>
<td>low</td>
<td>low to moderate</td>
<td>low</td>
</tr>
<tr>
<td>9 – Green wedge south</td>
<td>low to moderate</td>
<td>low</td>
<td>low</td>
<td>low</td>
</tr>
</tbody>
</table>
Summary of visual impacts to key views and sites of sensitivity

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<th>Impact summary with non-standard mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Bowen Parkway / Waterways wetlands / Mordialloc Creek</td>
<td>very high</td>
<td>very high</td>
<td>very high</td>
<td>high</td>
</tr>
<tr>
<td>6</td>
<td>Spoonbill Place / south-facing Waterways residents</td>
<td>very high</td>
<td>very high</td>
<td>very high</td>
<td>high</td>
</tr>
<tr>
<td>6</td>
<td>Sunset Lagoon lookout / representative view of west-facing Waterways residents</td>
<td>high</td>
<td>low to moderate</td>
<td>low</td>
<td>n/a</td>
</tr>
<tr>
<td>6</td>
<td>Waterways north-west residents</td>
<td>high</td>
<td>high</td>
<td>moderate to high</td>
<td>moderate</td>
</tr>
<tr>
<td>6</td>
<td>Nest Cafe</td>
<td>negligible</td>
<td>negligible</td>
<td>negligible</td>
<td>n/a</td>
</tr>
<tr>
<td>6</td>
<td>The Outlook</td>
<td>negligible</td>
<td>negligible</td>
<td>negligible</td>
<td>n/a</td>
</tr>
<tr>
<td>7</td>
<td>Jackie Court / Aspendale residential representative view</td>
<td>high</td>
<td>high</td>
<td>moderate to high</td>
<td>moderate to high</td>
</tr>
<tr>
<td>7</td>
<td>Bangalow Way open space</td>
<td>high</td>
<td>moderate</td>
<td>moderate to high</td>
<td>low to moderate</td>
</tr>
<tr>
<td>8</td>
<td>Retirement village and Springvale Road commercial activity node</td>
<td>moderate</td>
<td>high</td>
<td>high</td>
<td>moderate to high</td>
</tr>
<tr>
<td>9</td>
<td>Wells Road and Springvale Road intersection</td>
<td>negligible</td>
<td>negligible</td>
<td>negligible</td>
<td>n/a</td>
</tr>
<tr>
<td>10</td>
<td>Green wedge south from Mordialloc Creek and Springvale Road</td>
<td>low</td>
<td>moderate</td>
<td>low to moderate</td>
<td>n/a</td>
</tr>
</tbody>
</table>

Thames Promenade sub-study area

Summary of landscape character impacts:

<table>
<thead>
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</tr>
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<tbody>
<tr>
<td>low</td>
<td>low</td>
<td>low</td>
<td>low</td>
<td>n/a</td>
</tr>
<tr>
<td>low to moderate</td>
<td>low</td>
<td>low</td>
<td>low</td>
<td>very low</td>
</tr>
</tbody>
</table>

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